DOCUMENT RESUME

ED 153 186 CS 004 023

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TITLE	The Ability of Parents to Decode Nonverbal Behavior of Their Own and Other Children. Technical Report No. 444.
INSTITUTION	Wisconsin Univ., Madison. Research and Development Center for Cognitive Learning.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C.
PUB DATE	Dec 77
CONTRACT	NE-C-00-3-0065
NOTE	33p.
EDRS PRICE	MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS	Affective Behavior; *Behavioral Science Research; Body Language; *Children; Cognitive Processes; Cues; Elementary School Students; Interaction Process Analysis; *Nonverbal Communication; *Parent Child Relationship; Stimuli

ABSTRACT

The relationship between the encoder and the decoder in the communication of nonverbal behavior provides the basis for the two studies described in this report. The first study investigated the ability of parents to decode the nonverbal behavior of their own and other children. Parents were asked to identify children's mode of encoding (natural or role play) and the level of comprehension (understanding or not understanding) in films of their children interacting with another child. Results proved that parents were more accurate in decoding understanding or not understanding with their own child than with another child. In contrast, the decoding accuracy of parents was similar with their own and with another child in identifying the mode of encoding (natural or role play). The second study tested the role of familiarity by comparing children's accuracy in decoding their own and another child's nonverbal behavior. Results showed a similar level of decoding accuracy for themselves and for another child. (MAI)

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Technical Report No. 444

THE ABILITY OF PARENTS TO DECODE NONVERBAL BEHAVIOR OF THEIR OWN AND OTHER CHILDREN

by

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Report from the Project on
Studies of Instructional Programming
for the Individual Student

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December 1977

CS 004 023

ED122178

Published by the Wisconsin Research and Development Center for Cognitive Learning, supported in part as a research and development center by funds from the National Institute of Education, Department of Health, Education, and Welfare. The opinions expressed herein do not necessarily reflect the position or policy of the National Institute of Education and no official endorsement by that agency should be inferred.

Center Contract No. NE-C-00-3-0065

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The Wisconsin Research and Development Center is supported with funds from the National Institute of Education and the University of Wisconsin.

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I

INTRODUCTION

The ability of an individual to encode and decode nonverbal behavior has received a great deal of attention in recent years. It has been demonstrated that affective states can be communicated nonverbally by both adults (e.g., Ekman, 1972; Izard, 1971; Buck, 1974) and children (Buck, 1975). One specific line of research has examined factors related to competence in encoding and decoding nonverbal behavior.

A review of the literature on the ability to encode nonverbal behavior reveals that most studies have investigated individual differences in the communication of affective states. Research by Buck (1974, 1975) has shown that adult females encoded affective states more accurately than adult males, but sex differences were not found with children. Buck suggested that through the course of socialization males learn to inhibit the expression of emotions. Whether males are inferior to females in encoding nonverbal behaviors other than emotions remains an empirical question. The ability to encode affective states nonverbally was also related to a person's social skill. Encoders who were characterized as externalizers were also high in self esteem and extroversion. For children the relation was not as clear, although ability to encode was negatively related to entroversion, shyness, and playing alone. The ability to encode was also positively correlated with less socially skilled traits such as bossiness, impulsivity, aggressiveness, and low

cooperation.

Research on the ability to decode nonverbal behavior has not been concerned with individual differences, with the exception of Buck's study (1974) which found that decoding accuracy did not differ for males and females. Research by Jecker, Maccoby, and Breitrose (1965) examined factors influencing the decoding of nonverbal behavior, and extended the communication content as well. An abundance of data exists on the nonverbal communication of affective states, but there has been little attention devoted to the ability to use nonverbal behavior as a more general communication tool. Jecker et al. (1965) conducted a study dealing with the ability of teachers to decode children's level of comprehension. In an earlier study it was found that teachers performed quite poorly on this task (Jecker, Maccoby, & Breitrose, 1964). Therefore, the investigators replicated the earlier study that examined the effect of prior training (by feedback and discussion) on decoding performance. The results indicated that training did result in some improvement in the teachers' decoding accuracy. As pointed out by Allen and Atkinson (1976), however, the final performance levels were still at chance level.

One factor that has received almost no attention in the area of nonverbal skills is the relationship between encoder and decoder. In almost all the available research the stimulus person (encoder) has been a stranger to the decoder. It has generally been assumed that a social consensus exists concerning the nonverbal behaviors that are indicative of emotions and affect, and in general research has supported this contention. But, in addition, nonverbal behavior also contains a

component of individual variation. Therefore, familiarity with a person's nonverbal behavior should improve decoding accuracy because both the cues regarding consensus and the cues specific to that individual can be used in making judgments. It appears that only one study has tested this general issue. Jecker et al. (1965), in a post hoc comparison, found that teachers' decoding accuracy with unfamiliar students did not differ from the accuracy obtained with their own students. The distinction between own and other student was probably not great enough to provide an adequate test of the possible contribution of familiarity to decoding accuracy. The teachers involved in the study were graduate students undergoing their supervisory training as teachers, so the length of contact between the teachers and "own" students was probably minimal. The short period of contact and the fact that the teachers interacted with an entire class of students suggest that familiarity with any particular student was not great.

The present study attempts to test the effect of prior contact with another person on the accuracy of decoding nonverbal behavior. Maximal degree of prior familiarity with the encoder was obtained by using parents and their own children. Children were filmed while watching an easy or difficult lesson, and also while role playing understanding or not understanding a lesson. The parents of these children watched segments of film (without sound) of their own child and of another child. Parents were asked to indicate for each film segment the level of comprehension (understanding/not understanding) and the mode of encoding (natural behavior/role play behavior) being displayed by the child. The major prediction in the present study is that the parents' extensive

contact with their own child will result in higher decoding accuracy for film segments of their own child than of the other child.

A second hypothesis was tested concerning sex of the parent. It was predicted that mothers would be more accurate than fathers in decoding the nonverbal behavior of their own child. This hypothesis is based on the assumption that mothers are likely to have more contact with their child than fathers. A review of the literature by Maccoby and Jacklyn (1974), indicates however, that empirical evidence is available on this issue only for infants and young children. Thus, in order to test this assumption additional data were collected to determine if mothers do report spending more time overall with their children than fathers, and specifically if mothers spend more time than fathers helping the child with homework.

II

STUDY I

METHOD

Subjects

One year before the present experiment 40 fifth-grade children were videotaped (with their parents' permission) while participating in a study on nonverbal behavior in a tutoring situation. Parents of these children were contacted by mail and asked to participate in the present study. The mothers and fathers of 25 children agreed to participate in a 1/2 hour experiment, and gave permission for the videotapes of their children to be shown to one other family. Data from the mother of one female student were not used because the mother reported that poor vision prevented her from seeing the videotapes clearly. Fathers of three male students and one female student were unable to participate because of unexpected commitments at their jobs. Remaining as subjects were 24 mothers and 21 fathers. Nine mothers and 9 fathers observed tapes of their daughter, and 15 mothers and 12 fathers observed tapes of their son.

Apparatus

The stimulus tapes were presented on a Sony 3650 videotape recorder and viewed by subjects on a 26" RCA Lyceum monitor JR345B. Subjects sat at a table approximately 10 feet from the monitor. Wooden dividers between subjects ensured that judgments were made independently.

Stimulus Tapes

Children used as stimulus persons in the present study were videotaped while observing a lesson about electricity that was presented over closed-circuit television (Allen & Miller, 1976). Each child was filmed under four conditions: (1) while naturally understanding an easy part of the lesson; (2) while naturally not understanding a difficult part of the lesson; (3) while role-playing understanding a difficult part of the lesson; (4) while role-playing not understanding an easy part of the lesson. The videotape of each child lasted 10 minutes (2.5 minutes for each of the four conditions).

The stimulus materials presented to each family in the present study were constructed from the videotapes in the following manner. First, each stimulus child was paired at random with another stimulus child of the same sex. Four 45-second excerpts were taken from the videotape of each child in the pair (one from each of the four conditions). For each child the 45-second segment was taken after one min. of the videotaped behavior had elapsed. Thus, all the excerpts were taken from about the middle of the 2.5 minute recording of each original condition. This procedure yielded eight segments of videotape (four for each child in the pair). These eight segments were spliced together in random order, with the constraint that any two segments of one child should not follow one another consecutively. In other words, excerpts from both children in the pair were alternated so that a (randomly chosen) segment from child A would always be followed by a (randomly chosen) segment of child B until a single tape with eight segments of behavior had been prepared for each pair. All stimulus tapes (one for each family) were constructed in this manner.

Procedure

The study was conducted during a weekend at a small-town parochial elementary school. After arriving at the school library, the parents were seated in front of the monitor.

A male experimenter read instructions that oriented subjects to their viewing task. The parents were told that they would watch four videotaped segments of their own child, which would alternate with four segments of another child. They were told that each child had been videotaped while listening to a prepared lesson that varied in difficulty, and that the children were not aware of the filming while they were listening to the lesson. It was stated that parts of the lesson were very hard and other parts very easy, and therefore that the children were either understanding or not understanding the lesson. Subjects were told further that in some segments the children were pretending either to understand or not understand the lesson in order to mislead the teacher.

The subjects' task was to observe each segment of videotape and then indicate in their response booklet whether the child during the preceding segment was: (a) naturally understanding, (b) naturally not understanding, (c) pretending understanding, or (d) pretending not understanding. The experimenter stressed that the film segments were in "no special order" and that each segment should be judged independently of previous segments. Subjects were asked to refrain from recording each judgment until they had viewed the entire segment, and not to discuss their judgments. If there were no questions, the experimenter started the stimulus tape. At the end of each segment subjects made their responses; when all subjects were ready the next segment was shown.

Finally, a postexperimental questionnaire was administered to all participants. The questionnaire consisted of demographic items, estimated amount of time spent with their child each day (overall and working on homework), and degree of acquaintance with the other child shown on the videotape. Upon completion of the questionnaires the experimenter answered any questions, paid the parents $5.00 for their participation, and thanked them for their cooperation.

Dependent Measures

Accuracy for level of comprehension. Each subject viewed four film segments in which the children were understanding and four segments in which the children were not understanding. Furthermore, within each level of comprehension there were two segments presenting the parents' own child and two presenting another child. In scoring decoding accuracy of the parents for level of comprehension, we are not concerned with their accuracy in identifying mode of encoding (natural/role play), which is dealt with in the next section. Thus, whether parents were correct or incorrect in identifying mode of encoding did not influence their score for decoding the level of comprehension. In scoring for decoding the level of comprehension, on each segment a "1" was given if the parent correctly identified the level of comprehension displayed by the stimulus child, and a "0" if the parent incorrectly responded.

Accuracy for mode of encoding. The scoring for decoding the mode of encoding (natural/role play) was parallel to the scoring for decoding the level of comprehension. Four tape segments represented natural behavior and four represented role-play behavior. Within each mode of encoding there were two tape segments presenting parents' own child and

two presenting another child. For each tape segment a score of "1" was assigned for correctly identifying the mode of encoding, and a "0" for incorrectly answering. The performance of parents for the level of comprehension did not affect the score received for mode of encoding.

RESULTS

Accuracy for Level of Comprehension

A 2 x 2 x 2 x 2 analysis of variance was performed on the accuracy data. The between-subjects variables were parents (mother/father) and sex of stimulus person (male/female). The within-subjects variables were relationship to stimulus person (own child/other child) and level of comprehension (understanding/not understanding).

The results showed a significant main effect for relationship to stimulus person, F (1, 41) = 7.67, $p < .01$. The results were in the predicted direction: parents were more accurate in discriminating the level of comprehension on the basis of the nonverbal cues from their own child (M = 1.41)[1] than from the other child (M = 1.14). A main effect was also obtained for level of comprehension, F (1, 41) = 18.47, $p < .01$. Overall, the parents were more accurate in identifying understanding (M = 1.52) than not understanding (M = 1.03). No other main effects reached statistical significance.

Results also revealed a marginally significant interaction between parent, sex of stimulus person, and relationship to stimulus person (F (1, 41) = 3.72, $p < .06$. The means for this interaction are shown in Table 1. For the mothers, the decoding accuracy for level of comprehension was higher for their daughter than for their son. But for the

[1]Possible scores range from 0 to 2.00.

TABLE 1

ACCURACY FOR DECODING LEVEL OF COMPREHENSION

Sex of Stimulus Person	Relationship to Stimulus Person: Own Child	Another Child
	Mothers	
Male	1.27	1.27
Female	1.67	1.11
	Fathers	
Male	1.33	.96
Female	1.39	1.22

Note: Maximum score = 2.00

fathers, decoding accuracy did not differ as a function of sex of own child. In addition, there was a consistent trend for the decoding accuracy of both mothers and fathers to be higher for another child of the opposite sex than for another child of the same sex.

Accuracy for Mode of Encoding

The accuracy data for mode of encoding were analyzed by a 2 x 2 x 2 x 2 mixed analysis of variance. Between-subject variables were parent (mother/father) and sex of stimulus person (male/female). The within-subjects variables were relationship to stimulus person (own child/other child) and mode of encoding (natural/role play).

The main effect for relationship to stimulus person was not statistically significant, contrary to the prediction, F (1, 41) = .87, ns. Thus, when decoding children's mode of encoding the parents were not more accurate with their own child than with another child (.96 vs. 1.10, respectively). A main effect was obtained for mode of encoding, F (1, 41) = 17.43, $p < .001$. The parents more accurately identified natural behavior (M = 1.28) than role-play behavior (M = .78). No other main effects were significant.

A significant interaction was obtained for parent x sex of stimulus person x relationship to stimulus person x mode of encoding, F (1, 41) = 4.47, $p < .05$. Table 2 shows the means for this interaction. Examining first the accuracy for decoding own child's natural behavior, it appears that the performance of both parents was about equal for their sons and daughters. Furthermore, the decoding accuracy of fathers for their own child's natural behavior was higher than the decoding accuracy of mothers for both sons and daughters. Comparing the parents' de-

TABLE 2

DECODING ACCURACY FOR MODE OF ENCODING

Sex of Stimulus Person	Natural		Role Play	
	Own Child	Another Child	Own Child	Another Child
			Mothers	
Male	.93	1.20	.87	.93
Female	1.11	1.22	.56	.89
			Fathers	
Male	1.58	1.08	.58	.75
Female	1.44	1.67	.78	.89

Note: Maximum score = 2.00

coding of own and other child's natural behavior indicates that mothers were slightly better with the other child than with their own child. On the other hand, fathers showed higher accuracy when decoding their own child than the other child when the stimulus person was male. But when the stimulus person was female fathers were slightly better decoding the other child than their own child. Examining the decoding accuracy for role-play behavior, it is apparent that overall performance was lower for this dimension than for natural behavior. Parents tended to be less accurate in decoding the role-play behavior of a same-sex child, especially if the stimulus person was their own child. No other interactions were significant for this dependent measure.

DISCUSSION

Level of Comprehension

The results for the level of comprehension supported the major prediction of the present study. Parents more accurately identified the level of comprehension of their own child than of another child. When decoding their own child, parents could make use of the consensus cues (normative cues of comprehension) and also individual cues (specific cues used by their own child). In contrast, when decoding the other child the only cues available were the consensus cues. Thus, this additional source of information (individual cues) improved parents' performance in decoding nonverbal behavior of their own child. It is not clear, however, which particular factors in the parent-child relationship leads to greater knowledge about their own child's nonverbal responses. These results must be considered within the context of the

decoding task. The results indicated that parents are more familiar with their own child's than another child's nonverbal cues indicating understanding and not understanding. Thus, the parents' role as teacher may be an important factor. In educating their child the parents have had feedback in conditions in which their child exhibits understanding or not understanding. It is probable that this particular role of the parent contributed to their knowledge about the meaning of their own child's cues relevant to level of comprehension.

The second hypothesis tested in the present study asserted that mothers would be superior to fathers in decoding the nonverbal behavior of their own child. The data did not support this hypothesis. The main effect for parent and the parent x stimulus person interaction were not significant. An examination of the self-report data revealed that mothers did spend more time (overall) than fathers with their child ($\underline{M}$ = 4.78 vs. 2.72 hours per day, respectively). It would appear that greater overall contact did not contribute to greater knowledge about an individual's nonverbal cues indicative of comprehension. Alternatively, it is possible that a ceiling effect occurred. Although fathers have less contact than mothers with their children, the amount of interaction per day was still quite high (almost 3 hours).

The interaction between parent, sex of child, and relationship to the child showed that for own child the greatest accuracy was attained by mothers who decoded the nonverbal behavior of their daughters. The results from self-report measures indicated that mothers did not spend more time with their daughters than with their sons. An explanation of this effect would require further information about the nature of the

mother-daughter relationship. Unfortunately, as pointed out by Maccoby and Jacklin (1974), very little research has examined the nature of the mother-daughter relationship for children of this age group (pre-adolescence). Most of the available research has been concerned with the period from infancy to age five.

Another trend revealed by the interaction between parent, sex of child, and relationship to child was that parents did almost as well (and better in the case of fathers) in decoding the nonverbal behavior of another child of the opposite sex as with an opposite-sex own child. Perhaps parents were less confident about making judgments when the child was of opposite sex; thus, for such film segments they paid more attention and tried harder when making their judgments. Since no relevant data were collected, it is not possible to say that this explanation is valid, but it does suggest directions for future research. If this speculation is true, attention and effort--which are important factors on other tasks--may also contribute to the decoding accuracy in the case of nonverbal behavior. This suggests that studies should be conducted to examine the affect of varying level of attention by means of instructions, incentives for performing the task, etc.

Results showed that parents were more accurate overall in identifying understanding than not understanding. It is difficult to interpret this finding, since the result could be due either to the parents' performance in decoding or to the children's performance in the initial encoding. That is, the children may have encoded understanding better than not understanding, instead of the parents having decoded understanding better than not understanding.

Mode of Encoding

For mode of encoding, the hypothesis that familiarity will increase decoding accuracy did not receive support. The performance of parents was approximately the same for their own child and the other child. Why was familiarity an important factor for identifying level of comprehension, but not for mode of encoding? Two possible explanations can be offered. First, parents may not be familiar with their own child's nonverbal cues relevant to natural and role-play behavior. Their child's role-play behavior may be misinterpreted by parents as being natural behavior. Thus, without feedback, parents may interpret their child's nonverbal cues reflecting role play as being cues indicating natural behavior. The results did indicate that parents were more accurate in identifying natural behavior than role-play behavior. That is, they often labelled their child's behavior as natural when in fact it was role-play behavior. This was true for both their own child and the other child, however. This finding casts doubt on the explanation that past misinterpretation of their own child's individualistic cues to role play can account for the lack of difference in results between own and other child.

The second possible explanation for the differential findings for comprehension and mode of encoding emphasizes the nature of the two decoding tasks. The nonverbal behaviors associated with level of comprehension are more specific in nature than those for mode of encoding (natural/role play). For example, a head nod may be indicative of understanding and a frown or head shake may be indicative of not understanding. By contrast, the cues available for identifying natural and role-

play behavior are much more general. Zuckerman, Hall, DeFrank, and Rosenthal (1976) have noted that behaviors involved in role play are usually more intense. In addition, it seems reasonable that role play behavior will include a greater number of expressive and stereotyped behaviors. Thus, mode of encoding behavior may be determined more strongly by consensus cues than is the case with behavior reflecting level of comprehension. Thus, one would not expect that knowledge about individualistic cues would contribute to accuracy in decoding natural versus role play behavior.

A criticism of the explanation just suggested can be offered. If mode of encoding behavior is less specific, decoding accuracy should be better on this dimension. Inspection of data for the parents' overall level of accuracy for mode of encoding reveals that their performance was quite low ($\underline{M}$ = 1.03, which is chance level). A closer inspection of the results for mode of encoding does, however, provide some support for the argument. The main effect for mode of encoding, as previously mentioned, reveals that the parents were ineffective in identifying role play behavior. In view of prior research, this finding is perplexing. Zuckerman et al. (1976) and Allen and Atkinson (in press) found that college students were better at decoding role play behavior than natural behavior. The Allen and Atkinson (1976) study is particularly relevant, since the stimulus persons were drawn from the same sample as used in the present study, and several common stimulus persons were used. This suggests that parents are less accurate than college students at identifying children's role play behavior. We propose that this may be due to parents and college students having differential latitudes for responses which constitute children's natural behavior. Parents who have day-to-day con-

tact with their child define their child's natural behavior as covering a wide range of expressiveness and level of activity. Thus, when viewing the children's behavior the response that appears to be role playing to college students may still be within the parents' definition of natural behavior. In other words, the prior expectations held by parents about children's natural behavior leads them to adopt a higher threshold than college students for what constitutes over-activity and, therefore, role play behavior.

The interaction obtained for mode of encoding was complex, and will not be dealt with in detail. It should be noted that in decoding natural behavior the fathers' performance was better with their own child than with another child when the stimulus children were males. The other consistent trend was that identification of role play behavior was lower for same-sex children for both mothers and fathers, and especially so for their own child. If the above speculation about parents' expectations is valid, one could further suggest that parents see their same-sex child as more expressive and higher in activity. That is, the parents' threshold for role played behavior is higher for a same-sex child and even more so with their own child. Further research is needed to determine the validity of this hypothesis.

III

STUDY 2

A second study was conducted to investigate the ability of children to decode their own and another child's nonverbal behavior. Although one does not view oneself in everyday interaction, we are familiar with the production of our own nonverbal behavior. Thus, the present study tested the effect of having familiarity with the production of nonverbal behavior on the decoding of nonverbal behavior. Children viewed film segments (without sound) of themself and another child. As in Study 1, they were asked to identify the level of comprehension (understanding/not understanding) and mode of encoding (natural/role play) of the child on the film segment.

METHOD

Subjects

Subjects were 25 sixth-grade children (15 males and 10 females). The apparatus, stimulus tapes, procedure, and dependent measures were the same as those used in Experiment 1.

RESULTS

Level of Comprehension

Results for the analyses of variance are presented in Table 3. The analysis of variance for comprehension revealed a main effect for comprehension (understanding/not understanding), F (1, 23) = 21.56,

TABLE 3

ANALYSIS OF VARIANCE FOR COMPREHENSION (DIMENSIONAL ACCURACY)

Source	SS	Df	MS	F	P
Sex of Subject (A)	.11	1	.11	.20	--
S/A	12.33	23	.54	--	--
Stimulus Person (B)	1.50	1	1.50	3.00	--
AB	.06	1	.06	.12	--
SB/A	11.50	23	.50	--	--
Comprehension (C)	6.41	1	6.41	21.56	.001
AC	.17	1	.17	.56	--
SC/A	6.83	23	.30	--	--
BC	1.31	1	1.31	4.46	.05
ABC	1.71	1	1.71	5.83	.05
SBC/A	6.73	23	.29	--	--

$p < .001$. The subjects showed higher accuracy for decoding understanding ($M = 1.34$) as compared to not understanding ($M = .84$). Comprehension also interacted with type of stimulus person (self/other), F (1, 23)= 4.46, $p < .05$. The means for this interaction are shown in Table 4. The means reveal that accuracy on understanding the segments of behavior was greater for the other stimulus person than self, but that accuracy on decoding for not understanding was about the same for self and other.

As shown in Table 5, a significant three-way interaction was found for sex x stimulus person x comprehension, F (1, 23) = 5.83, $p < .05$, which indicated that the above trend was true only for females. Males showed the opposite trend. That is, when the stimulus person was understanding, accuracy did not differ significantly for self versus other. However, not understanding was more accurately decoded when exhibited by other as compared to self. No other main effects or interactions were significant for this analysis.

Mode of Encoding

The analysis of variance for mode of encoding resulted in a marginally significant main effect for mode of encoding (natural/role play), F (1, 23) = 4.21, $p < .06$. Subjects were more accurate at decoding role-play behavior ($M = 1.28$) than natural behavior ($M = .98$). No other main effects or interactions were significant.

DISCUSSION

The results obtained for the second study indicated that children's decoding accuracy did not differ as a function of type of stimulus person for the mode of encoding (natural/role play). That is, level of

TABLE 4

DIMENSIONAL ACCURACY AS A FUNCTION OF STIMULUS PERSON AND COMPREHENSION

	Stimulus Person	
Mode of Encoding	Self	Other
Understanding	1.10	1.58
Not understanding	.82	.83

Note: Maximum score = 2.00

TABLE 5

DIMENSIONAL ACCURACY AS A FUNCTION OF SEX,
STIMULUS PERSON, AND COMPREHENSION

	Understand		Not Understand	
Sex of Subject	Self	Other	Self	Other
Male	1.20	1.47	.73	1.07
Female	1.00	1.70	.90	.60

Note: Maximum score = 2.00

decoding accuracy was very similar for film segments of own and of another child's nonverbal behavior. Results for comprehension accuracy suggest that in the case of detecting understanding the children were more accurate with another child than with self. This finding clearly indicates that the presumed greater familiarity with one's own nonverbal behavior did not facilitate decoding the behavior.

The results for mode of encoding paralleled the data obtained for parents in Study 1. However, the parents' greater familiarity with their own child did appear to have improved the accuracy of their decoding of comprehension. Parents were more accurate in detecting their own than another child's level of comprehension (understand/not understand). Thus, the results of Study 2 were not consistent with the findings of Study 1. Although no overall effect for stimulus person was found in Study 2, an interaction revealed that children were better with another child than with self in the detecting of understanding. A possible explanation for these results is that familiarity may not have been involved as a variable in Study 2. Familiarity is the consequence of repeated exposure to some event or object. But an individual does not usually obtain objective feedback about his or her own facial expressions. Thus, a person may not have greater familiarity with one's own nonverbal behavior than with another person's.

An interesting study can be suggested to test the effect of a person's familiarity with his or her own nonverbal cues. Results of the present study suggest that the children may not have been familiar with their own nonverbal cues, because of the lack of feedback about the appearance of one's own facial expressions. Another channel of nonver-

bal communication is available, however--the paralinguistic channel (intonations and other nonverbal aspects of speech). A person does receive objective feedback through this channel. That is, when expressing emotions, affect, and comprehension we do receive constant auditory feedback concerning the paralinguistics being employed. Thus, it could be predicted that a person would be more accurate in decoding tape recordings of one's own voice than in decoding similar recordings from another person.

In summary, the present study did not find a difference in the accuracy of decoding nonverbal behavior when children observed film segments of self as compared to segments of another child. It was suggested that the results may indicate that familiarity was not the active variable because of the lack of a feedback system for visual expressions, which would allow one to develop familiarity with nonverbal cues. In contrast to the visual channel, the paralinguistic channel does provide such feedback, which should result in increased familiarity with one's paralinguistic responses. Thus, it is predicted that a person's decoding for own paralinguistic responses would be more accurate than the accuracy for another person's paralinguistic responses.

REFERENCES

Allen, V. L., & Atkinson, M. L. Effects of training on decoding of complex stimuli. Unpublished manuscript: University of Wisconsin, Madison, 1976.

Allen, V. L., & Atkinson, M. L. The encoding of nonverbal behavior by high- and low-achieving children. Journal of Educational Psychology, in press.

Allen, V. L., & Miller, D. J. Nonverbal behavior in a learning situation: Intentional and nonintentional responses by high- and low-achieving students. Working Paper No. 145, Madison: Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, 1976.

Buck, R., Miller, R. E., & Caul, W. F. Sex, personality, and physiological variables in the communication of affect via facial expression. Journal of Personality and Social Psychology, 1974, 30, 587-596.

Buck, R. Nonverbal communication of affect in children. Journal of Personality and Social Psychology, 1975, 31, 644-653.

Ekman, P., Friesen, W. V., & Ellsworth, P. Emotion in the human face: Guidelines for research and an integration of findings. New York: Pergamon Press, 1972.

Izard, C. E. The face of emotion. New York: Appleton-Century-Crofts, 1971.

Jecker, J., Maccoby, N., Breitrose, H. W., & Rose, E. Teacher accuracy in assessing cognitive visual feedback. Journal of Applied Psychology, 1964, 48, 393-397.

Jecker, J., Maccoby, N., & Breitrose, H. S. Improving accuracy in interpreting nonverbal cues of comprehension. Psychology in the Schools, 1965, 2, 239-244.

Maccoby, E. E., & Jacklin, C. N. The psychology of sex differences. Stanford: Stanford University Press, 1974.

Zuckerman, M., Hall, J. A., DeFrank, R. S., & Rosenthal, R. Encoding and decoding of spontaneous and posed facial expressions. Journal of Personality and Social Psychology, 1976, 34, 966-977.